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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	09/675,700	STARR ET AL.
	Examiner	Art Unit	
	BARBARA N. BURGESS	2457	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>14 December 2009</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-7 and 21-33</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-7 and 21-33</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some * c) ☐ None of:

         1. ☐ Certified copies of the priority documents have been received.

         2. ☐ Certified copies of the priority documents have been received in Application No. _____.

         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to amendment filed December 14, 2009. Claims 1-7,

21-33 are presented for further examination.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1, 3-4, 21, 23, 28-31, 33 are rejected under 35 U.S.C. 102(e) as being

anticipated by Elzur (US Patent 6,427,169 B1).

As per claim 1, Elzur discloses an interface device for a computer, the interface device

connectable to a network and storage unit, the storage unit including a disk drive, the

interface device comprising:

- A sequencer including a hardware logic circuit configured to process a transport

  layer header of a network packet (column 2, lines 43-47, 55-58, 64-67, column 3,

  lines 1-4);

- A memory adapted to store control information regarding a network connection

  being handled by said device (column 4, lines 2-4, 15-17, 62-67);

- A mechanism for associating said packet with said control information (column 4, lines 20-30, column 5, lines 5-10).

- selecting whether to process said packet by said computer or to send data from said packet to the storage unit, thereby avoiding the computer (column 5, lines 59-65, column 6, lines 7-10, 42-52).

As per claim 3, Elzur discloses the interface device of claim 1, further comprising a plurality of network ports, wherein one of the said network ports is connectable to the storage unit (column 4, lines 43-45, column 6, lines 49-50, column 11, lines 28-30).

As per claim 4, Elzur discloses the interface device of claim 1, further comprising a Fibre Channel controller connectable to the storage unit (column 3, lines 46-60).

As per claim 21, Elzur discloses an interface device for a computer, the interface device connectable to a network and a storage unit, the storage unit including a disk drive, the interface device comprising:

- A receive mechanism that processes a Transmission Control Protocol (TCP) header of a network packet (column 2, lines 43-47, 55-58, 64-67, column 3, lines 1-4);

- A memory storing a combination of information describing an established TCP connection (column 4, lines 2-4, 15-17, 62-67);

- A processing mechanism that associates said packet with said information (column 4, lines 20-30, column 5, lines 5-10);

- selecting whether to process said packet by said computer or to send data from said packet to the storage unit, thereby avoiding the computer (column 5, lines 59-65, column 6, lines 7-10, 42-52).

As per claim 23, Elzur discloses the interface of claim 21, further comprising a Fibre Channel controller connectable to the storage unit (column 3, lines 46-60).

As per claim 28, Elzur discloses a method for operating an interface device for a computer, the interface device connectable to a network and a storage unit, the storage unit including a disk drive, the method comprising:

- Receiving, by the interface device from the network, a packet containing data and a Transmission Control Protocol (TCP) header (column 2, lines 43-47, 55-58, 64-67, column 3, lines 1-4);

- Processing, by the interface device, the TCP header (column 2, lines 43-47, 55-58, 64-67, column 3, lines 1-4);

- Storing, on the interface device, information regarding a TCP connection (column 4, lines 2-4, 15-17, 62-67);

- Associating, by the interface device, the packet with the TCP connection (column 4, lines 20-30, column 5, lines 5-10);

- Selecting, by the interface device, whether to process the packet by the computer or to send the data from the packet to the storage unit, thereby avoiding the computer (column 5, lines 59-65, column 6, lines 7-10, 42-52).

As per claim 29, Elzur discloses the method of claim 28, further comprising creating, by the computer, the information regarding the TCP connection (column 4, lines 35-50).

As per claim 30, Elzur discloses the method of claim 28, wherein the interface device includes a network port, and the packet is received via the port and the data is sent to the storage unit via the port (column 4, lines 43-45, column 6, lines 49-50, column 11, lines 28-30).

As per claim 31, Elzur discloses the method of claim 28, wherein the interface device includes first and second network ports, and the packet is received via the first port and the data is sent to the storage unit via the second port (column 4, lines 43-45, column 6, lines 49-50, column 11, lines 28-30).

As per claim 33, Elzur discloses the method of claim 28, further comprising adding a network protocol header to the data for sending the data to the storage unit (column 7, lines 35-49).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 2, 5, 22, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Elzur (US Patent 6,427,169 B1) in view of Day et al. (hereinafter "Day", US Patent

6065096).

        As per claims 2 and 22, Elzur discloses the interface device of claims 1 and 21.

Elzur does not explicitly disclose the interface further comprising a SCSI controller

connectable to the storage unit.

However, Day discloses SCSI interface channels attached to disk drives (column 2,

lines 40-54, column 5, lines 1-25).

        Therefore, one of ordinary skill in the art at the time the invention was made

would have found it obvious to implement or incorporate in Day's interface comprising a

SCSI controller in Elzur's device in order to provide for a simple, lower cost RAID

controller architecture to enable lower cost and complexity associated with high

performance and high reliability storage subsystems.

        As per claims 5 and 25, Elzur discloses the network interface device of claims 1

and 21.

Elzur does not explicitly disclose the interface further comprising a RAID controller

connectable to the storage unit.

However, Day discloses a RAID controller that integrates onto a single integrated circuit

of a general-purpose processor (column 2, lines 11-25, 55-67).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Day's interface comprising a RAID controller in Elzur's device allowing the disk interface connections and protocols to be more flexibly selected but at the cost of less integration within the circuit.

5.   Claims 6-7, 24, 26-27, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elzur (US Patent 6,427,169 B1) in view of Muller et al. (hereinafter "Muller", US Patent 6,453,360 B1).

    As per claim 6, Elzur does not explicitly discloses the network interface device of claim 1, further comprising a file cache adapted to store said data.

    However, the use and advantages for using such cache is well-known to one of ordinary skill in the art as evidenced by Muller (column 56, lines 20-30, column 58, lines 26-30).

    Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

    As per claim 7, Elzur does not explicitly discloses further discloses the network interface device of claim 1, further comprising a file cache adapted to store said data under control of a file system in the host.

However, the use and advantages for using such cache is well-known to one of ordinary skill in the art as evidenced by Muller (column 56, lines 20-30, column 58, lines 26-30).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

As per claim 24, Elzur does not explicitly discloses the interface device of claim 21, further comprising a file cache adapted to store said data.

However, the use and advantages for using such cache is well-known to one of ordinary skill in the art as evidenced by Muller (column 56, lines 20-30, column 58, lines 26-30).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

As per claim 26, Elzur does not explicitly discloses the network interface of claim 21, further comprising a file cache adapted to store said data.

However, the use and advantages for using such cache is well-known to one of ordinary skill in the art as evidenced by Muller (column 56, lines 20-30, column 58, lines 26-30).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

As per claim 27, Elzur does not explicitly discloses the network device of claim 21, further comprising a file cache adapted to store said data under control of a file system in the computer.

However, the use and advantages for using such cache is well-known to one of ordinary skill in the art as evidenced by Muller (column 56, lines 20-30, column 58, lines 26-30).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

As per claim 32, Elzur does not explicitly discloses the method of claim 28, further comprising storing the data on a file cache of the interface device.

However, the use and advantages for using such cache is well-known to one of ordinary skill in the art as evidenced by Muller (column 56, lines 20-30, column 58, lines 26-30).

Therefore, one of ordinary skill in the art at the time the invention was made would have found it obvious to implement or incorporate Muller's file cache in Elzur's device in order to store non-assembled packets.

Response to Arguments

6.   Applicant's arguments filed have been fully considered but they are not

persuasive.

The Office notes the following argument(s):

(a)   Elzur discloses no storage unit.

(b)   Elzur does not disclose a storage unit that includes a disk drive.

(c)   There is nothing in Elzur that teaches "thereby avoiding the computer".

(d)   There is no one of the said network ports in Elzur.

(e)   There is simply no Fibre Channel controller connectable to the storage unit.

(f)   There is no adding a network protocol header to the data for sending to storage

unit.

(g)   Muller does not disclose a file cache adapted to store data on an interface

device.

In response to:

(a)   Elzur teaches directly transferring packet data to a buffer (in a system memory).

This memory buffer is a "storage unit" because it stores the data (column 3, lines 65-67,

column 5, lines 63-65, column 6, lines 7-10, 34-40).

Therefore, Elzur, without a doubt, discloses a storage unit.

(b)   In response to applicant's arguments, the recitation "storage unit including a disk

drive" has not been given patentable weight because the recitation occurs in the

preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

This feature is not positvely recited/tied to the claim limitations.

(c)   Elzur teaches a computer system receiving a packet including a header. The header indicates characteristics that are associated with a layer of protocol stack. The header is parsed to extract the characteristic and based on this information it is determined whether the packet should be processed by the computer system or transferred directly to a memory buffer. The packet may bypass execution of certain software on the computer system and sent to the memory buffer (column 3, lines 1-4, 61-67, column 5, lines 59-66, column 6, lines 7-10, 18-20). The claim limitation states "selecting whether to process said packet by said computer or to send data from said packet to the storage unit, thereby avoiding the computer" so the packet is not processed. Avoiding the computer results in the packet not being processed. Therefore, Elzur undoubtedly discloses avoiding the computer.

(d)   It is known that a port is an interface on a computer to which you can connect a device. Computers have various types of ports. Internally, there are several ports for connecting disk drives, display screens, and keyboards. Externally, computers have ports for connecting modems, printers, mice, and other peripheral devices.

According to Elzur, the computer system has various port connecting to keyboard, display, peripheral device, and memory (Figures 4 and 5).

Therefore, Elzur indeed teaches network ports.

(e)   Elzur teaches a network controller used to parse and extract header information from received packets (column 2, lines 58-61, column 3, lines 65-67, column 4, lines 6-10).

(f)   Elzur teaches the zero copy parser determines the exact memory address to store the data. This address becomes the destination address (column 6, lines 43-51, column 9, lines 5-8).

Therefore, Elzur discloses adding a network protocol header to the data for sending to storage unit.

(g)   Muller teaches a plurality of caches used to store data packets in a high performance network interface before transferring to a host system (Abstract, column 56, lines 20-30, column 58, lines 26-30).

Therefore, the combination of Elzur and Muller indeed discloses a file cache adapted to store data on an interface device.

Conclusion

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA N. BURGESS whose telephone number is (571)272-3996. The examiner can normally be reached on M-F (8:00am-4:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Barbara N Burgess/   Barbara N Burgess
Examiner, Art Unit 2457   Examiner
                                              Art Unit 2457
March 10, 2010

/ARIO ETIENNE/

Supervisory Patent Examiner, Art Unit 2457